

## CLAIMS

1. Composition characterized in that it essentially consists in a solid solution of a mixture of at least a perovskite cristallographic structure with nickel and/or rhodium metal.

5 2. Composition according to claim 1, represented by the general formula (I) :



wherein :

A and A' are different and are selected from the Lanthanide or the Actinide families or from the group II<sub>a</sub> of the Mendeleev's periodical table of elements;

10 B is selected from the transition metal groups of columns IIIb, IVb, Vb, VIb, VIIb, Ib and IIb and group VIIIb of the Mendeleev's periodical table of elements;

$$0 < x \leq 0.7,$$

$$0 < y \leq 0.5,$$

$$0 \leq x+y \leq 0.8,$$

15  $0 \leq z \leq 1$  and

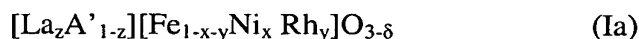
$\delta$  is the sub stoichiometric value of oxygen to obtain the electric neutrality of the Perovskite compound.

3. Composition according to claim 2, wherein A and A' are independently chosen from La, Ce, Ca or Sr.

20 4. Composition according to claim 3, wherein A is La.

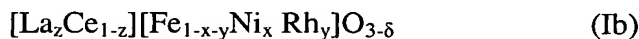
5. Composition according to claims 1 to 4, wherein B is chosen from Mn, Fe, Co or Al.

6. Composition according to claim 2, represented by the formula (Ia):



25 wherein A', x, y, and z and  $\delta$  are as hereinabove defined for the formula (I).

7. Composition according to claim 6, represented by the formula (Ib) :

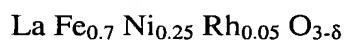


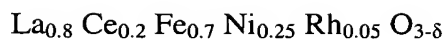
wherein x, y, and z and  $\delta$  are as herein above defined for the formula (I),

8. Composition according to claims 2 to 7, wherein  $0 < x \leq 0.5$ .

30 9. Composition according to claims 2 to 8, wherein,  $0 < y \leq 0.25$ , and  $z < 1$ .

10. The following compositions :





11. Use of a composition according to any claim 1 to 10 which the operating catalyst conditions are in the range of 500 to 1300 °C and preferably between 600 to 1100°C,
12. Use of a composition according to any claim 1 to 10 which the operating catalyst conditions are in the range of  $10^5$  Pa to  $3 \cdot 10^6$  Pa and preferably between  $10^5$  Pa to  $10^6$  Pa.
13. Use of a composition according to any claim 1 to 10 which the operating catalyst conditions are any oxydant feed, preferably pure oxygen, oxygen and inert gas mixture, steam, carbon dioxide or a mixture of part or/and all of them.
14. Use of a composition according to claims 1 to 10, as a catalyst of the partial oxydation of natural gas and/or light hydrocarbons to synthesis gas, as a catalyst of the steam and/or dry reforming of natural gas and/or light hydrocarbons (C1-C4) to synthesis gas or as a catalyst of selective oxidations, as a catalyst of hydrogenation reactions or as a catalyst of dehydrogenated oxydative reactions.